

# Monthly Marine Biotoxin Report

February 2005

Technical Report No. 05-10

## INTRODUCTION:

This report provides a summary of biotoxin activity for the month of February 2005. Ranges of toxin concentrations are provided for the paralytic shellfish poisoning (PSP) toxins and for domoic acid (DA). Estimates are also provided for the distribution and relative abundance of *Alexandrium*, the dinoflagellate that produces PSP toxins, and *Pseudo-nitzschia*, the diatom that produces domoic acid. Summary information is also provided for any quarantine or health advisory that was in effect during the reporting period.

Please note the following conventions for the phytoplankton and shellfish biotoxin distribution maps: (i) All estimates for phytoplankton relative abundance are qualitative, based on sampling effort and percent composition; (ii) All toxin data are for mussel samples, unless otherwise noted; (iii) All samples are assayed for PSP toxins; DA analyses are performed as needed (i.e., on the basis of detected blooms of the diatoms that produce DA); (iv) Please refer to the appropriate figure key for an explanation of the symbols used on the maps.

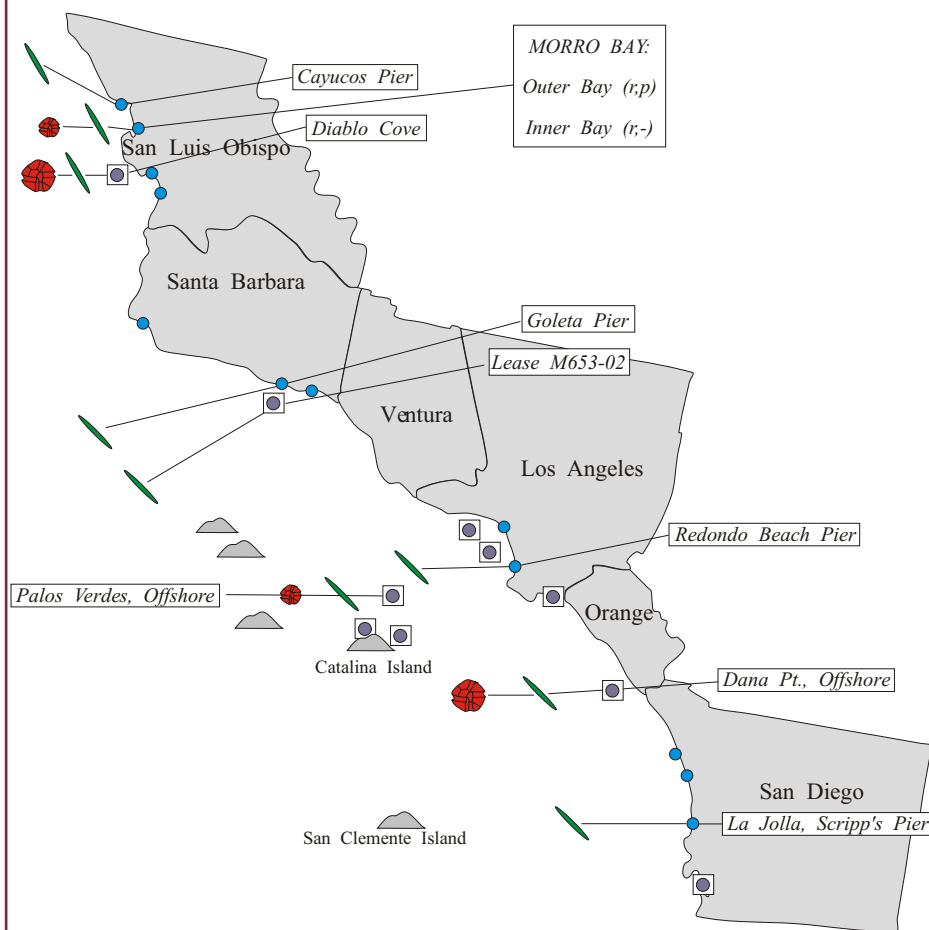
### Southern California Summary:

#### Paralytic Shellfish Poisoning

*Alexandrium* was observed at several sampling stations during February (Figure 1). This toxin-producing dinoflagellate continued

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Figure 1. Distribution of toxin-producing phytoplankton in Southern California during February, 2005.



### Relative Abundance of Known Toxin Producers

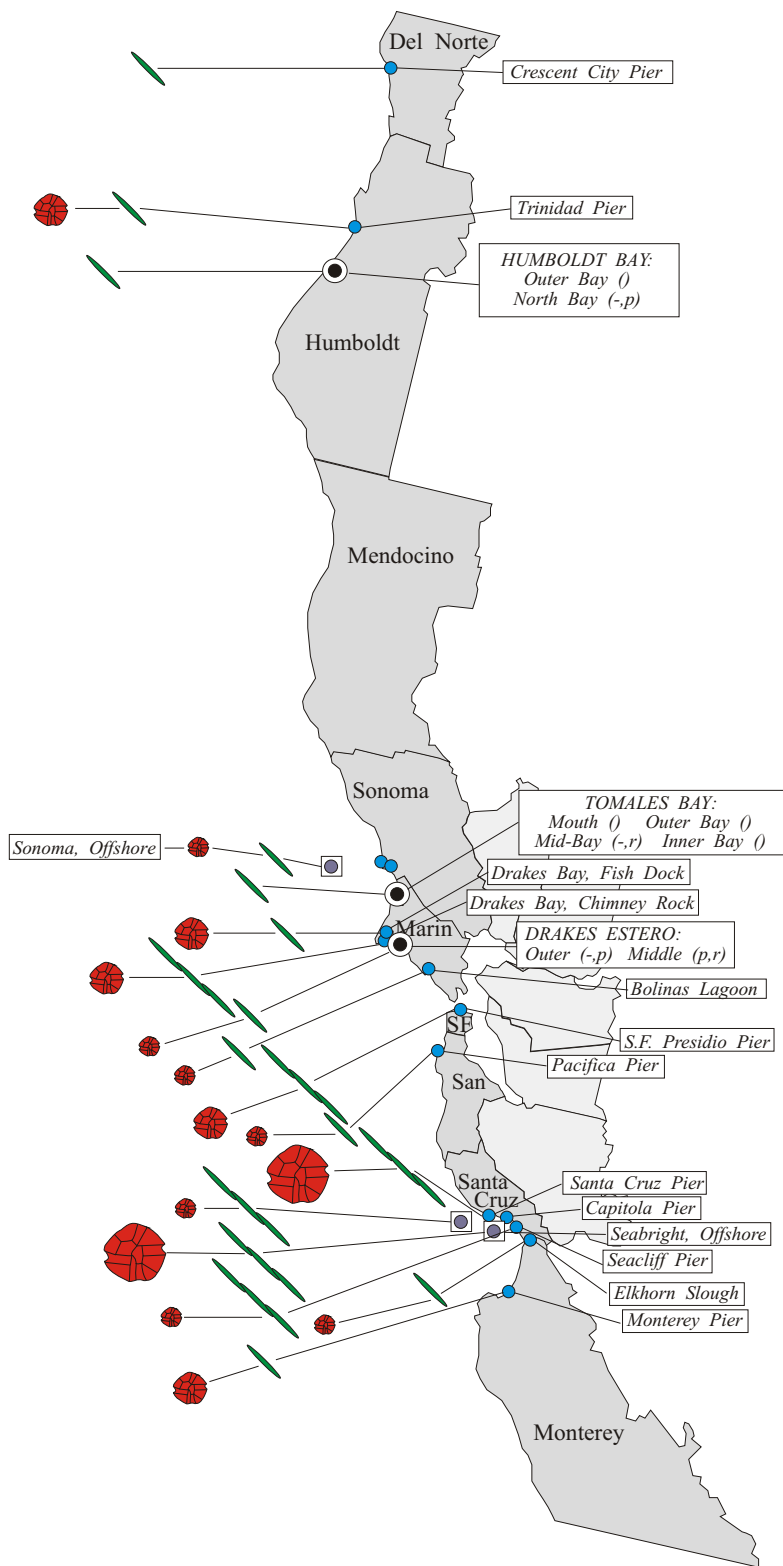
Alexandrium Species		Pseudo-nitzschia Species	
	Rare (less than 1%)		Present (less than 10%)
	Present (between 1% and 10%)		Common (between 10% and 50%)
	Common (between 10% and 50%)		Abundant (greater than 50%)
	Abundant (greater than 50%)		

#### MONTHLY SAMPLING STATIONS:

- Single Sampling Station
- Multiple Sampling Stations
- Offshore Sampling Station

For areas with multiple sampling stations, species abundance at each station is represented as follows:  
(a,p) = Abundance for *Alexandrium* and *Pseudo-nitzschia*.  
e.g., (c,p) = common, present; (a,-) = abundant, not observed

Figure 2. Distribution of toxin-producing phytoplankton in Northern California during February, 2005.



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to be present inside Morro Bay and was also observed at several offshore sampling sites (Diablo Cove, Palos Verdes, and Dana Point).

The low levels of PSP toxins detected in January in San Luis Obispo County increased dramatically by the third week of February (Figure 3). Toxin concentrations above the alert level were detected in shellfish samples from Cayucos Point and inside Morro Bay.

### Domoic Acid

*Pseudo-nitzschia* was observed at sites along the entire Southern California coast in February (Figure 1). These observations represent an increase in distribution compared to January's observations, although cell numbers remain quite low.

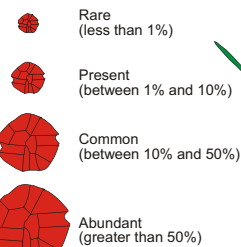
### Non-toxic Species

Phytoplankton diversity and cell density remained low as a result of winter storm conditions. Greatest cell masses were observed in the offshore samples in Los Angeles and Orange counties. There was a mix of diatoms (*Chaetoceros*, *Thalassiosira*) and dinoflagellates (*Ceratium spp.*, *Gymnodinium sanguineum*, and *Prorocentrum micans*) along the coast throughout February.

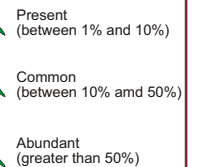
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### Relative Abundance of Known Toxin Producers

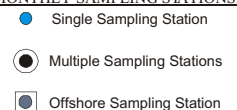
#### Alexandrium Species



#### Pseudo-nitzschia Species



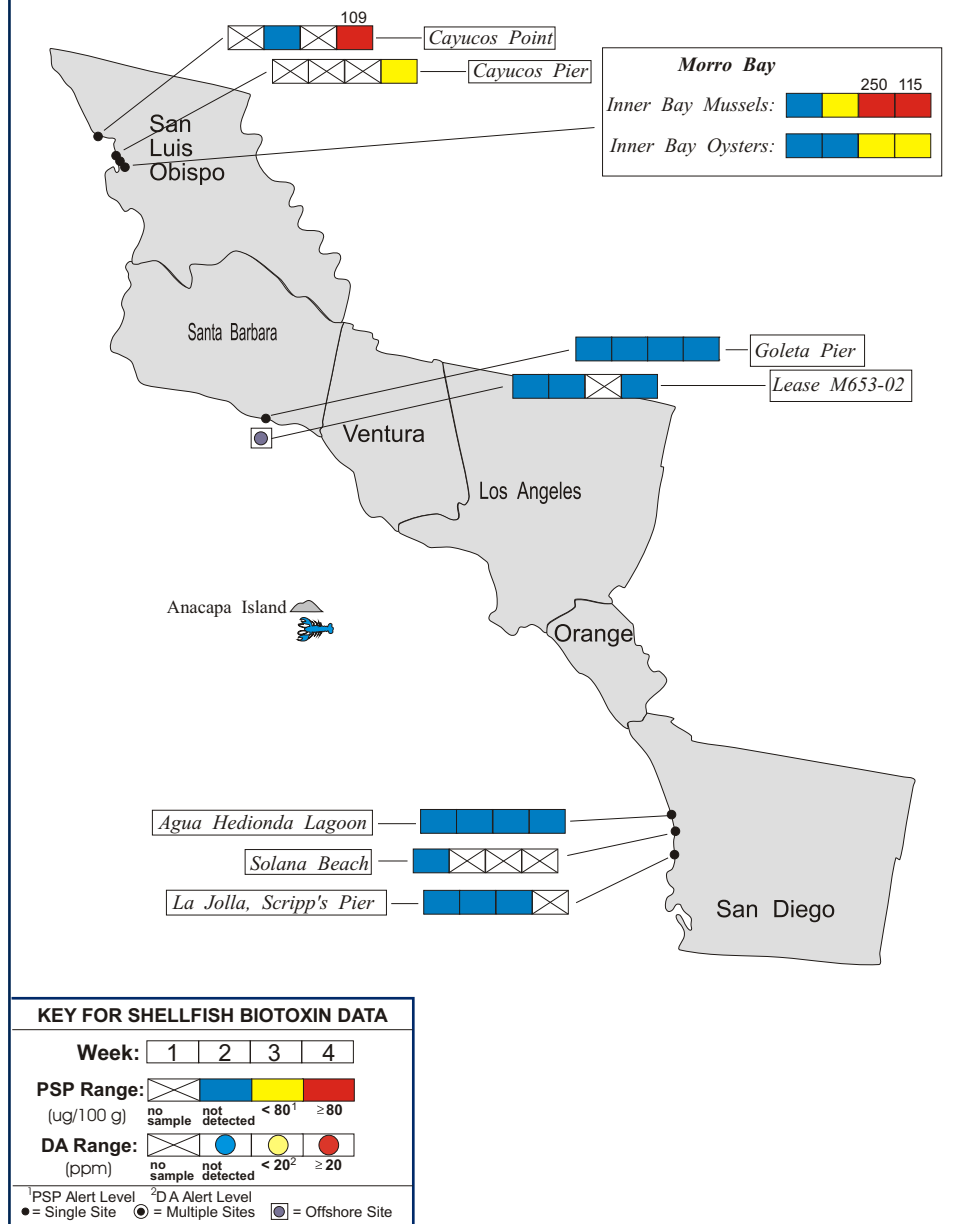
#### MONTHLY SAMPLING STATIONS:



For areas with multiple sampling stations, species abundance at each station is represented as follows:

(A,P) = Abundance for *Alexandrium* and *Pseudo-nitzschia*.  
e.g., (c,p) = common, present; (a,-) = abundant, not observed

Figure 3. Distribution of shellfish biotoxins in Southern California during February, 2005.



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### Northern California Summary:

#### Paralytic Shellfish Poisoning

*Alexandrium* was observed at several Northern California sites in February (Figure 2). The distribution and abundance of this dinoflagellate increased along the coast compared to observations in January. The most significant increases in relative abundance were observed between Marin and Monterey counties. *Alexandrium* was common at two sites inside Monterey Bay, a rare occurrence in February.

Low concentrations of PSP toxins were detected at several locations along the coast between Marin and Monterey in January (Figure 4). Detectable levels of these toxins persisted in mussels from Santa Cruz throughout the month.

#### Domoic Acid

*Pseudo-nitzschia* was observed along most of the Northern California coast in February (Figure 2). The relative abundance of this diatom increased noticeably at sites from Marin through Santa Cruz counties. The highest relative abundance for this diatom was observed at the Santa Cruz Pier.

#### Non-toxic Species

Winter storms kept phytoplankton diversity

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The Marine Biotoxin Monitoring and Control Program, managed by the California Department of Health Services, is a state-wide effort involving a consortium of volunteer participants. The shellfish sampling and analysis element of this program is intended to provide an early warning of shellfish toxicity by routinely assessing coastal resources for the presence of paralytic shellfish poisoning (PSP) toxins and domoic acid.

The Phytoplankton Monitoring Program is a state-wide program designed to detect toxin producing species of phytoplankton in ocean water before they impact the public. The phytoplankton monitoring and observation effort can provide an advanced warning of a potential toxic bloom, allowing us to focus sampling efforts in the affected area before California's valuable shellfish resources or the public health is threatened.

For More Information Please Call:  
(510) 412-4635

For Recorded Biotoxin Information Call:  
(800) 553-4133

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and abundance quite low through the first week of February, with cell numbers increasing throughout the month. Diatoms were the most common group observed, particularly *Chaetoceros* and *Thalassiosira*. Despite the dominance of diatom species, there were isolated locations where dinoflagellates were most common. There was a *Prorocentrum* bloom observed inside Tomales Bay and *Ceratium* was abundant in Drakes Bay at the Chimney Rock sentinel station.



Figure 4. Distribution of shellfish biotoxins in Northern California during February, 2005.

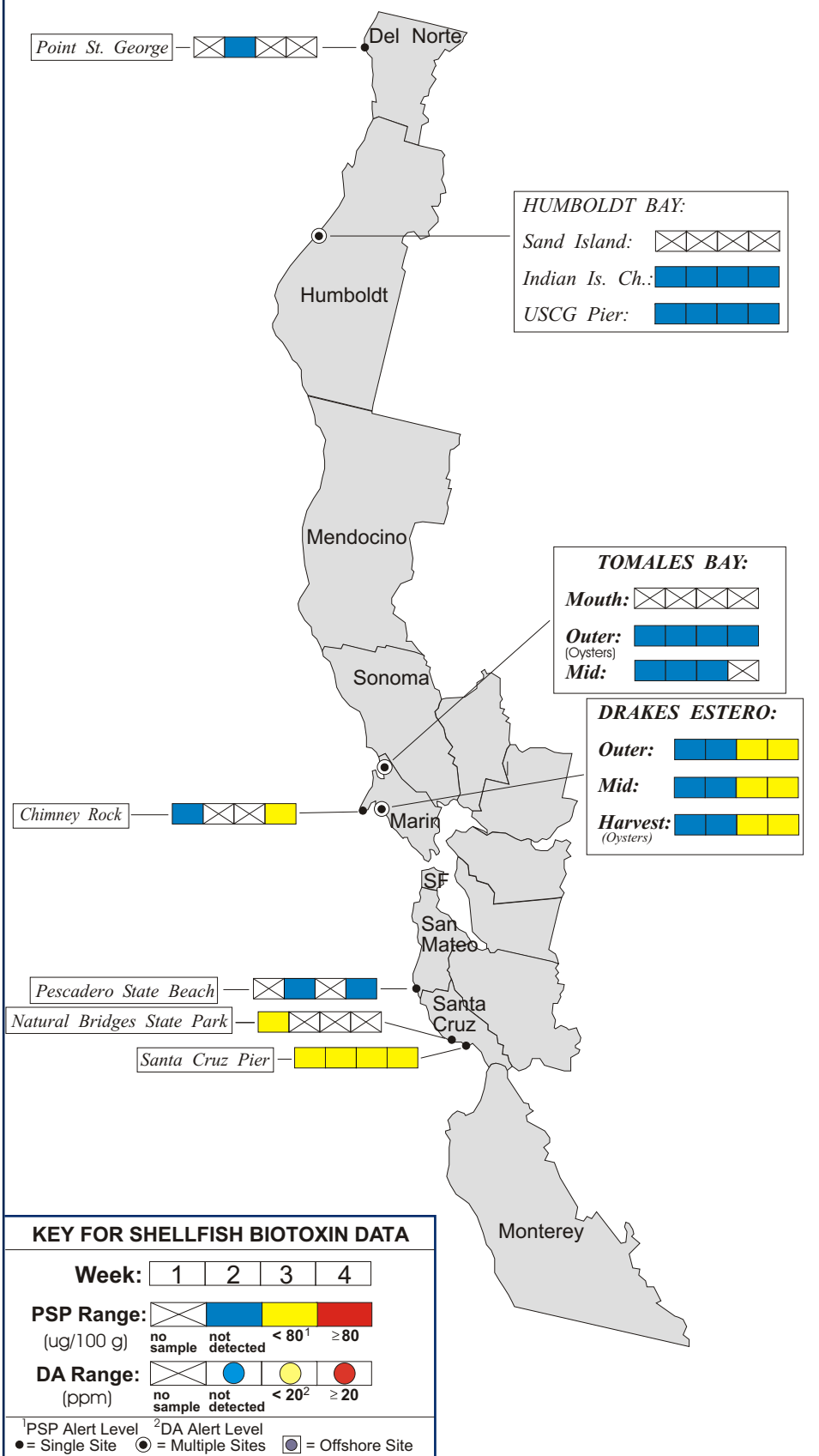


Table 1. California Marine Biotoxin Monitoring Program participants submitting shellfish samples during February, 2005.

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	1
Humboldt	Coast Seafood Company	8
Mendocino	None Submitted	
Sonoma	None Submitted	
Marin	Cove Mussel Company	3
	Hog Island Oyster Company	3
	Johnson Oyster Company	26
	Marin Oyster Company	1
	DHS Marine Biotoxin Monitoring Program	2
San Francisco	None Submitted	
San Mateo	San Mateo County Environmental Health Department	2
Santa Cruz	U.C. Santa Cruz	4
	Santa Cruz County Environmental Health Department	1
Monterey	None Submitted	
San Luis Obispo	Williams Shellfish Company	10
	Morro Bay National Estuary Program	1
	CDHS Volunteer (Oto Schimdt)	2
Santa Barbara	Santa Barbara Mariculture Company	7
	U.C. Santa Barbara Marine Science Institute	4
Ventura	CDHS Volunteer (Bill Weinerth)	1
Los Angeles	None Submitted	
Orange	None Submitted	
San Diego	Carlsbad Aquafarms, Inc.	4
	Scripps Institute of Oceanography	3
	CDHS Volunteer (Paul Sims)	1

### QUARANTINES:

The health advisory issued on June 10 remained in effect. This advisory warned consumers to avoid eating sport-harvested shellfish from Humboldt and Del Norte counties and was the result of dangerous levels of domoic acid in razor clams collected from this region.

The annual quarantine on the sport-harvesting of mussels was rescinded at midnight on October 31 as scheduled. This annual quarantine goes into effect each year on May 1, unless unusual early season toxicity prompts an earlier start.

The annual mussel quarantine applies only to sport-harvested mussels along the entire California coastline, including all bays and estuaries. This quarantine does not affect the commercial shellfish growing areas in California. All commercial shellfish growers certified by the State of California are required to submit routine samples for biotoxin analysis, allowing us to closely monitor for the occurrence of any toxin. Harvesting closures are imposed if toxin levels reach the federal alert level.

Consumers of Washington clams, also known as butter clams, are cautioned to eat only the white meat. Persons taking any clams or scallops are advised to remove and discard the dark parts (i.e., the digestive organs or viscera).

Contact the "Biotoxin Information Line" at 1-800-553-4133 or (510) 412-4643 for a current update on marine biotoxin activity.





Table 2. Agencies, organizations and volunteers participating in marine phytoplankton sample collection during February, 2005.

COUNTY	AGENCY	# SAMPLES
Del Norte	Del Norte County Health Department	3
Humboldt	Coast Seafood Company	4
	DHS Volunteer (Jacki Riley)	2
Mendocino	None Submitted	
Sonoma	Cordell Banks National Marine Sanctuary	1
Marin	CDHS Volunteers (Brent Anderson, Mary Von Tölsdorf, Marjorie Siegel, Cal Strobel)	6
	Tomales Bay Association	2
	DHS Marine Biotoxin Monitoring Program	1
	Johnson Oyster Company	12
Contra Costa	DHS Marine Biotoxin Monitoring Program	1
San Francisco	CDHS Volunteer (Eugenia McNaughton)	3
San Mateo	San Mateo County Environmental Health Department	2
Santa Cruz	U.C. Santa Cruz	4
	California Department of Parks and Recreation	2
	Santa Cruz County Environmental Health Department	3
Monterey	CDHS Volunteer (Jerry Norbn)	1
	Pacific Cetacean Group	2
San Luis Obispo	CDHS Volunteers (Renee and Auburn Atkins)	2
	Morro Bay National Estuary Program	2
	Tenera Environmental	2
Santa Barbara	U.C. Santa Barbara Marine Science Institute	4
	Santa Barbara Mariculture Company	4
Ventura	None Submitted	
Los Angeles	CDHS Volunteer (Richard Weaver)	2
	Los Angeles County Sanitation District	4
	Catalina Tall Ships Expeditions	2
	City of Los Angeles Environmental Monitoring Division	3
Orange	None Submitted	
San Diego	CDHS Volunteer (Paul Sims)	2
	Scripps Institute of Oceanography	4

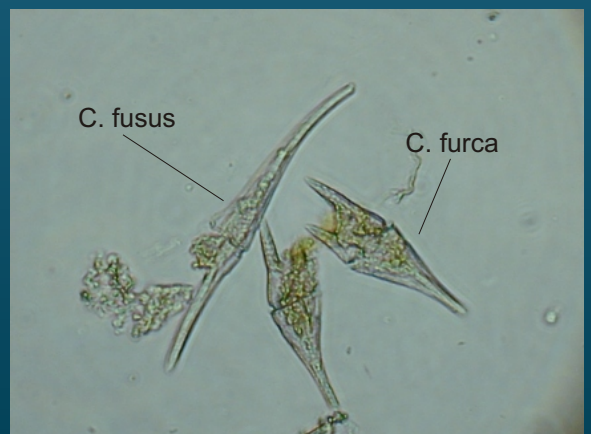
## PHYTOPLANKTON GALLERY



The diatom *Thalassiosira* was common along the Northern California coast.



Chains of *Alexandrium*, the PSP toxin-producing dinoflagellate, was common at several sites along the



The dinoflagellate *Ceratium* was common at sites along the Southern California coast.